

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL Z. LOWENSTEIN

Appeal No. 1997-1187
Application No. 08/422,360

ON BRIEF

PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

REMAILED
SEP 15, 2000
JUL 23 2000

Before KRASS, FLEMING, and BLANKENSHIP, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of Claims 1-15 and 17-21, all the claims remaining in the application.

We affirm-in-part and enter a new ground of rejection in accordance with 37 CFR § 1.196(b).

BACKGROUND

The invention is directed to a device for substantially eliminating a harmonic current in an electrical power system. Claim 7 is reproduced below.

7. A device for substantially eliminating a harmonic current generated by a nonlinear load in an electrical distribution system, the distribution system distributing power from an AC source, said device consisting of:

a first passive electrical component connected in series with the nonlinear load;

a second passive electrical component connected in parallel to said first passive electrical component;

a third passive electrical component connected in parallel to said first and said second passive electrical components; and

wherein said first, said second, and said third passive electrical components are tuned to a harmonic frequency of the AC source so as to change the current drawn by the nonlinear load.

The examiner relies on the following for evidence of unpatentability:

Stacey et al. (Stacey)	3,849,677	Nov. 19, 1974
Thanawala	3,881,137	Apr. 29, 1975
Gilardi et al. (Gilardi)	5,243,648	Sep. 7, 1993

Appellant's Admitted Prior Art (APA)

Claims 1-11 and 20-21 stand rejected under 35 U.S.C. § 103 as being unpatentable over appellant's APA, Stacey, and Thanawala.

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Claims 12-15 and 17-19 stand rejected under 35 U.S.C. § 103 as being unpatentable over appellant's APA, Stacey, Thanawala, and Gilardi.¹

We refer to the Final Rejection (Paper No. 7) and the Examiner's Answer (Paper No. 14) for a statement of the examiner's position and to the Brief (Paper No. 13) and the Reply Brief (Paper No. 17) for appellant's position.

OPINION

Independent Claims 1, 7, 11

The examiner has rejected Claims 1-11, 20, and 21 as unpatentable under 35 U.S.C. § 103 over appellant's APA, Stacey, and Thanawala. (See Answer, page 4.) Appellant contends, as set forth on page 10 through the top of page 13 of the Brief, that the proposed combination of Stacey and Thanawala is unfounded.

A suggestion to combine references may come expressly from the references themselves. A suggestion may also come from the nature of a problem to be solved, leading inventors to look to references relating to possible solutions to that problem. Pro-Mold and Tool Co. v. Great Lakes Plastics Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996). In the instant

¹Rejections under 35 U.S.C. § 112, present in the Final Rejection, have been withdrawn by the examiner. (See Answer, page 2.)

case, the problem to be solved was the detrimental effect of third order harmonic currents created in electrical power systems having single phase nonlinear loads.

In electrical power systems, harmonic currents are often created due to the presence of nonlinear loads located therein. In some instances, significant levels of third order harmonic currents are created in electrical power systems having single phase nonlinear loads, which may often approach the level of the fundamental frequency current. Such third order harmonic currents adversely effect [sic] the performance of power systems by causing the peak voltage of the power lines to flatten, thus disrupting the operation of nonlinear loads, such as single-phase switching power supplies, and corresponding devices connected thereto.

(Specification, page 1, lines 11-18.)

We would agree with appellant that the references of Stacey and Thanawala, standing alone, would not have suggested appellant's invention to the artisan. However, in view of the problem that appellant set out to solve, we find that the artisan, when seeking solutions, would reasonably have turned to references dealing with problems related to harmonic currents. The artisan would have found the Stacey reference to be of particular pertinence to the problem at hand. Stacey discloses, in Figure 5, a filter connected in series between a power source and a load, forming an infinite impedance to the flow of harmonic currents. The filter consists of a capacitor 60, an inductor 62, and an active element 28' which generates a "fictitious ripple" current at harmonic frequencies to counteract the harmonics in the circuit. See Stacey, column 6, line 56 through column 7, line 10. "[I]f the elements 60 and 62 are exactly tuned to the ripple

frequency, and assuming that only one ripple frequency [exists], then if the internal resistance of the passive elements is zero, the active element 28' will not come into play....” Id.

Thus, the reference explicitly discloses that an active element is unnecessary when there is but one harmonic frequency of interest. The examiner finds that replacement of the active element with a resistor would have been indicated for precise tuning of the filter for a single harmonic frequency (see, e.g., Answer, page 7), a fact which appellant has not disputed. Appellant instead attacks the combination of Stacey and Thanawala as if they were the sole evidence of unpatentability, which is not responsive to the rejection. The evidence submitted by the examiner includes appellant’s APA. The combination of prior art including the APA has not been sufficiently addressed by appellant.

Appellant also appears to mischaracterize the rejection in the first paragraph of page 11 of the Brief, and in paragraph “1” of page 2 of the Reply Brief. As made clear on page 7 of the Answer, the examiner’s rationale does not propose modifying the circuitry of Stacey, in view of the teachings of Thanawala, beyond the replacement of active element 28' with a resistor. Moreover, in addition to the specific applications shown in Figs. 9, 11, 13, and 15 of Thanawala, the reference suggests resistance for damping of harmonic frequencies. See, e.g., Thanawala, column 1, lines 15 through 35.

We agree with appellant that Stacey teaches that active filtering is desirable. But that teaching is directed to the problem that the reference was solving -- namely, the problem of

detrimental effects of multiple harmonic frequencies. “The use of patents as references is not limited to what the patentees describe as their own inventions or to the problems with which they are concerned. They are part of the literature of the art, relevant for all they contain.” In re Heck, 699 F.2d 1331, 1333, 216 USPQ 1038, 1039 (Fed. Cir. 1983), quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968). In view of Figure 5 of Stacey and the above-noted portion of the written description of the reference, in addition to the disclosure in column 1 that harmonic filtering traditionally consisted of passive components, the artisan -- when faced with the problem of attenuating a single harmonic frequency -- would have found Stacey to be suggestive of using only passive components.

We are also aware, as pointed out on page 12 of the Brief, that Stacey discloses refinements to overcome variations in passive component values or source frequency. However, in much the same way as the specific teachings regarding overcoming the effects of multiple harmonic frequencies would have been viewed by the artisan as having marginal relevance to the problem at hand, the teaching is also of little relevance to the problem that was facing appellant.

Appellant has not submitted separate arguments for Claim 11. Appellant has not shown the prima facie rejection to be in error. We conclude that the subject matter as a whole of Claim 11 would have been obvious to the artisan, and thus sustain the rejection of the claim.

Appellant's arguments in support of Claim 7 appear on pages 14 and 15 of the Brief. Initially we note that the suggested replacement of active element 28' with a resistor in Figure 5

of Stacey meets the limitations of Claim 7. The filter would consist of three passive electrical components having the claimed configuration. We also note that the allegation that “[n]o reference disclosed by the Examiner” teaches or suggests the claimed device is not responsive to the rejection of record, which includes appellant’s APA. We therefore sustain the rejection of Claim 7.

Claim 1 sets forth the device for substantially eliminating currents within the environment of a multiple phase electrical system. Appellant argues on pages 9 and 10 of the Brief that no reference cited by the examiner discloses or suggests the claimed subject matter, which is not responsive to the rejection of record. Appellant does, however, take issue with the alleged content of the APA. Appellant disagrees with the examiner’s contention, as set out on page 6 of the Answer, that appellant’s reference to U.S. Patent 4,812,669 in the specification means that the APA includes filters in three phase systems as disclosed by the patent. However, it is unnecessary to determine the extent to which the content of the referenced patent may represent admitted prior art to appellant. The last paragraph of page 1 of appellant’s specification clearly indicates that harmonic currents in three phase systems were additive in the neutral line, and were detrimental to the systems. Appellant also admits on page 1 that a single frequency of harmonic current (i.e., the third harmonic) may approach the fundamental frequency

current in systems having single phase nonlinear loads.² We find, upon consideration of the evidence as a whole, that the artisan would have recognized, as a suggested solution to the stated problems, three identical filters having three passive elements in the configuration of Figure 5 of Stacy -- one filter for each phase of a three phase system. We conclude that the claimed subject matter would have been obvious, and sustain the rejection of Claim 1.

Claims 2-6, 8-10, 20, 21

Dependent Claims 2-6, 8-10, 20, and 21 are included in the examiner's rejection under 35 U.S.C. § 103 over appellant's APA, Stacey, and Thanawala.

Claim 2 adds the limitation to the subject matter of Claim 1 that the passive electrical components are tuned to a third harmonic frequency of the source. Since third order harmonics were detrimental and a significant factor in the problem facing appellant (Specification, page 1), we conclude that the subject matter as a whole would have been obvious to the artisan.

²The inquiry into "the subject matter as a whole" requires consideration of the problem facing appellant. Discovery of the "source of the problem" may, in certain circumstances, tend to show nonobviousness. See, e.g., In re Spinnoble, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969) (patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified). In the instant case, appellant does not allege that he was discoverer of the source of the problems related to electrical power systems. Cf. In re Kaslow, 707 F.2d 1366, 1373-74, 217 USPQ 1089, 1095 (Fed. Cir. 1983)(patentability cannot reside on discovery of "source of the problem" where no clear indication in specification that appellant was discoverer of source of problem); In re Wiseman, 596 F.2d 1019, 1022-23, 201 USPQ 658, 661 (CCPA 1979)(patentability cannot reside on discovery of "source of the problem" based on mere statement of fact in specification, with no indication that appellants were discoverers of fact).

The limitations of Claims 3 and 4, which are specific as to the passive components, are rendered obvious by the prior art, as discussed supra with respect to base Claim 1, and in view of the suggested substitution of a resistor for the active element in the Stacey circuitry. Claims 5, 6, 20, and 21 set forth nothing different from the suggested passive filter in each phase of a three phase system, also discussed supra with respect to base Claim 1. The limitations of Claims 8-10, specific as to the harmonic and the passive components, also fail to patentably distinguish the invention over the applied prior art for the reasons discussed previously with respect to Claim 1, and in view of the suggested substitution in the Stacey circuitry.

On page 14 of the Brief, in arguments for Claims 9 and 10, appellant refers to the Stacey reference as disclosing a linear load. It is true that at column 3, line 37, load 18 is referred to as “linear.” However, in view of the remainder of the reference, the use of the word may be a mere informality.³ The apparatus of Stacey was invented to overcome the effects of nonlinear loads. See Stacey, column 1, first paragraph. In any event, both appellant’s APA and the Stacey reference serve as evidence that harmonic currents were known to be a problem in circuits with nonlinear loads. We conclude that appellant has not shown the prima facie rejection to be in error.

³Compare, for example, appellant’s Brief in the first full paragraph of page 13, in which appellant misquotes his own Claim 1 as containing a “linear load.”

For the foregoing reasons, we sustain the rejection of dependent Claims 2-6, 8-10, 20, and 21.

Claims 12-15, 17-19

The examiner has rejected Claims 12-15 and 17-19 as unpatentable under 35 U.S.C. § 103 over appellant's APA, Stacey, Thanawala, and Gilardi. The examiner refers to Figures 1, 2, 5 and 6 of Gilardi as suggestive of various details in the claims. (See Answer, page 5.)

The examiner has not pointed out where the rack panel member as set forth in Claim 12 may be disclosed or suggested. The examiner's position is that "placing the filter housing in any mechanical structure would have been an obvious variation of the invention, as this is a mere intended use for the invention." (Answer, page 8.) However, Claim 12 clearly sets forth the rack panel member as a positively recited element. The limitation represents more than mere "intended use." We conclude that the evidence submitted by the examiner fails to support a prima facie rejection with respect to Claim 12, and we therefore do not sustain the rejection.

According to appellant, there is no suggestion of the Claim 13 recitation of a "connecting means having a bracket member for mounting the device along a planar surface so as to replace a conventional wall outlet and to connect to a nonlinear load." (Brief, page 15.) In Claim 13, however, the recitations concerning substantial alignment with a planar surface, and replacing a "conventional wall outlet," do represent intended use. Appellant claims a "device for reducing

currents in an electrical system”; not such a device combined with a wall. The broadest reasonable interpretation of the claim, in light of the specification, does not require that such a device be in combination with a wall. The claim positively sets forth “at least one bracket member for mounting [the] device along a substantially planar surface....”

There is, of necessity, some sort of “connecting means” -- a physical interface -- between any power source, filter, and load. The inclusion of “at least one bracket member” in the “connecting means” between the filter and the load would have been recognized as obvious by any ordinary person -- one of less than ordinary skill in the art. Common, ordinary experience with nails and screws would have suggested “at least one bracket member” as an obvious mechanical expedient for securing placement of the physical interface between the filter and load. We therefore sustain the rejection of Claim 13.

Appellant submits arguments in support of Claim 14 on page 16 of the Brief. The examiner has not addressed the “monitor saver board” feature of the claim, and we do not find any suggestion of the limitations in the prior art submitted by the examiner. We therefore do not sustain the rejection of Claim 14. We do, however, enter a new ground of rejection (infra) with respect to the claim pursuant to 37 CFR § 1.196(b).

In regard to Claim 15, appellant lists items that are believed to be missing from the applied prior art, including an “isolation transformer.” (See Brief, page 16.) Appellant also refers to Gilardi as “allegedly” disclosing an isolation transformer. (See Reply Brief, page 3.)

However, appellant has done nothing to rebut the examiner's finding that transformer 37 (Figure 6), as described in column 4, lines 23 through 30, is an "isolation transformer" within the meaning of the claim. (See Answer, page 5.) Nor has appellant called into question the obviousness of using an isolation transformer in the combination of elements of Claim 15, as set forth in the examiner's statement of rejection. (Id.) The only other element within Claim 15 that appellant argues as a patentable feature is the connecting means having a mounting bracket member. For the reasons set forth supra with respect to the "bracket member" limitation of Claim 13, we do not consider the "connecting means" and "at least one bracket member" to have been nonobvious at the time of invention. We therefore sustain the rejection of Claim 15.

With respect to Claim 17, the examiner takes "official notice" that the elements set forth in Claim 17 were well known to those skilled in the art. (See Answer, page 5.) Indeed, appellant admits as much in the paragraph bridging pages 6 and 7 of the Brief. However, we agree with appellant that mere knowledge that the elements existed does not result in a conclusion of obviousness of the claimed subject matter. We also agree that official notice may not be taken of what may have been "an obvious modification," if the term is to be construed as a legal conclusion. Since the examiner's ultimate conclusion regarding obviousness is not supported by the evidence submitted, we do not sustain the rejection of Claim 17. We also do not sustain the rejection of Claims 18 and 19, since each of the claims contain at least the limitations of Claim 17.

New Ground of Rejection -- 37 CFR 1.196(b)

We enter the following new ground of rejection against the claims in accordance with 37 CFR 1.196(b): Claim 14 is rejected under 35 U.S.C. § 103(a) as unpatentable over appellant's APA, Stacey, Thanawala, and Kikinis⁴.

We have determined, as set forth supra, that the subject matter of Claim 11 would have been obvious to the artisan, based upon the evidence consisting of appellant's APA, Stacey, and Thanawala. Claim 14 adds limitations wherein "the nonlinear load comprises a computer having a monitor connected thereto; and said device further includes at least one monitor saver board, said monitor saver board deactivates said monitor during periods of nonuse, and a housing member having electrical connectors for connection to said monitor and to said computer."

We find that a computer would have been recognized as a "nonlinear load" suitable for connection to the device of Claim 11, at least in view of appellant's APA (at page 1, lines 23 through 25), and the description of non-linear devices at column 1, first paragraph of Stacey.

Kikinis lists several reasons why disabling a computer video monitor when not needed was advantageous. See Kikinis columns 1 and 2, "Background of the Invention." As one solution, Kikinis proposes a sync detect circuit 551 (Figure 5) which determines whether video signals have been supplied to a monitor 547 within a measured time. If not, switch 553 is

⁴U.S. Patent 5,880,719, March 9, 1999, having an effective filing date of December 2, 1992, a copy of which is attached to this decision.

opened, disabling AC power to the monitor. See id., column 5, line 53 through column 6, line 9.

Based upon the combined teachings of the prior art, we conclude that a monitor saver for deactivating the monitor during periods of nonuse, in combination with the elements set forth in Claim 11, would have been obvious to the artisan at the time of invention. We further reach the conclusion, based upon the level of skill in the art as evidenced by the references, that the artisan would not have found placing the monitor saver circuitry (i.e., sync detect circuitry and/or the switch) on a "board" as nonobvious. Finally, see Figure 2 of Gilardi for examples of electrical connectors and a "housing member" that were in the prior art. Electrical connectors for the monitor and the computer for mating with power cords of the monitor and computer would have been recognized as necessary for delivering power to the components. Some form of "housing member" would have been recognized at least as an obvious expedient for protecting the electrical connectors, and for protecting users from direct contact with the AC power source. We conclude that the subject matter as a whole of Claim 14 would have been obvious to a person having ordinary skill in the art at the time the invention was made.

CONCLUSION

The rejection of Claims 1-11, 13,¹⁵~~20~~, and 21 is affirmed.

The rejection of Claims 12, 14, 15, and 17-19 is reversed.

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This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b)(amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§ 1.197(c)) as to the rejected claim:

(1) Submit an appropriate amendment of the claim so rejected or a showing of facts relating to the claim so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner

....

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART -- 37 CFR 1.196(b)

Ernest M. Kern

ERROL A. KRASS
Administrative Patent Judge

Michael R. F. 2

MICHAEL R. FLEMING
Administrative Patent Judge

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